Gillette
Environment
Health and Safety

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MATERIAL SAFETY DATA SHEET

NAME: DURACELL SILVER OXIDE BATTERIES

CAS NO: Not applicable **Effective Date:** 7/15/03 **Rev:** 3

A. — IDENTIFICATION

	%	
		Formula: Mixture — Mixture
		Molecular Weight: NA
Silver Oxide (20667-12-3)	27-40	Synonyms: Silver Oxide Button Cells: 1.5V- D301/386B; D303/357B; D309/393B; D361/362B; D364B; D370/371B; D377B; D379B; D381/391; D384/392B; D389/390B; D395/399B; D396/397B; MS76B; MS76BSM; D317B; D319B; D376B
Zinc (7440-66-6)	7-11	
Potassium Hydroxide (35%) (1310-58-3)	0-10	
Sodium Hydroxide (20-30%) (1310-73-2)	0-10	
Manganese Dioxide (1313-13-9)	0-3	
Mercuric Oxide (21908-53-2)	<1	

B. — PHYSICAL DATA

Boiling Point: NA °F NA °C	Melting Point: NA °F NA °C	Freezing Point: NA °F NA °C
Specific Gravity (H_2O=1): NA	Vapor Density (air=1): NA	Vapor Pressure @ ____ °F: NA mm Hg
Evaporation (Ether =1): NA	Saturation in Air (by volume@ ____ °F): NA	Autoignition Temperature: ____ °F ____ °C: NA
% Volatiles: NA	Solubility in Water: NA	pH: NA

Appearance/Color: Button cells. Contents dark in color.

Flash Point and Test Method(s): NA

Flammable Limits in Air (% by volume): Lower NA % Upper NA %

C. — REACTIVITY

Stability				Polymerization			
	[X]	stable	[ ] unstable		[ ]	may occur	[X] will not occur

Conditions to Avoid	Conditions to Avoid
Do not heat, crush, disassemble, short circuit or recharge.	Not applicable
Incompatible Materials	**Hazardous Decomposition Products**
Contents incompatible with strong oxidizing agents.	Thermal degradation may produce hazardous fumes of mercury, zinc, silver and manganese; hydrogen gas; caustic vapors of potassium hydroxide, sodium hydroxide and other toxic by-products.

*** IF MULTIPLE INGREDIENTS, INCLUDE CAS NUMBERS FOR EACH** **NA=NOT AVAILABLE**

Footnotes

Not applicable

D. — HEALTH HAZARD DATA

Occupational Exposure Limits PEL's, TLV's, etc.)

8-Hour TWAs: Silver Oxide (as Ag) - 0.01 mg/m^3 (OSHA); 0.1 mg/m^3 (ACGIH)
Potassium Hydroxide - 2 mg/m^3 (Ceiling) (ACGIH)
Sodium Hydroxide - 2 mg/m^3 (OSHA); 2 mg/m^3 (Ceiling) (ACGIH)
Manganese Dioxide (as Mn) - 5 mg/m^3 (Ceiling) (OSHA); 0.2 mg/m^3 (ACGIH/Gillette)
Mercuric Oxide (as Hg) - 0.1 mg/m^3 (Ceiling) (OSHA); 0.025 mg/m^3 (ACGIH, Skin)

These levels are not anticipated under normal consumer use conditions.

Warning Signals

Not applicable

Routes/Effects of Exposure

These chemicals and metals are contained in a sealed can. For consumer use, adequate hazard warnings are included on both the package and on the battery. Potential for exposure should not exist unless the battery leaks, is exposed to high temperatures is accidentally swallowed or is mechanically, physically, or electrically abused. Contains concentrated potassium hydroxide and/or sodium hydroxide, which is caustic. Anticipated potential leakage of potassium/sodium hydroxide is 0.05 to 0.5 ml, depending on battery size. Less than 1% mercury is contained in the battery.

1. Inhalation — Not anticipated. Respiratory (and eye) irritation may occur if fumes are released due to heat or an abundance of leaking batteries.

2. Ingestion — An initial x-ray should be obtained promptly to determine battery location. Batteries lodged in the esophagus should be removed immediately since leakage, caustic burns and perforation can occur as soon as 4-6 hours after ingestion. Irritation, including caustic burns to the internal/external mouth areas, may occur following exposure to a leaking battery.

3. Skin

a. Contact
Irritation, including caustic burns/injury, may occur following exposure to a leaking battery

b. Absorption
Not anticipated.

4. Eye Contact — Irritation including caustic burns/injury, may occur following exposure to a leaking battery.

5. Other — Not applicable

E. — ENVIRONMENTAL IMPACT

1. Applicable Regulations — All ingredients listed in TSCA inventory.

2. DOT Hazard Class - Not applicable

3. DOT Shipping Name - Not applicable

Please note: These batteries are not regulated by U. S. DOT or international agencies as hazardous materials or dangerous good when shipped.

Environmental Effects

Recyclers are available. If not recycled, these batteries should be disposed of as hazardous waste.

F. — EXPOSURE CONTROL METHODS

Engineering Controls

General ventilation under normal use conditions.

Eye Protection

None under normal use conditions. Wear safety glasses when handling leaking battteries.

Skin Protection

None under normal use conditions. Use neoprene, rubber or latex gloves when handling leaking batteries.

Respiratory Protection

None under normal use conditions.

Other

Keep batteries away from small children.

G. — WORK PRACTICES

Handling and Storage

Store at room temperature. Avoid mechanical or electrical abuse. Batteries may explode, pyrolize or vent if disassembled, crushed, recharged or exposed to high temperatures. Install batteries in accordance with equipment instructions. Replace all batteries in equipment at the same time. Do not carry batteries loose in pocket or bag.

Normal Clean Up

Not applicable

Waste Disposal Methods

No special precautions are required for small quantities. Large quantities of open batteries should be treated as hazardous waste. Dispose of in accordance with federal, state and local regulations. Do not incinerate, since batteries may explode at excessive temperatures.

H. — EMERGENCY PROCEDURES

Steps to be taken if material is released to the environment or spilled in the work area

Caustic potassium/sodium hydroxide may be released from leaking or ruptured batteries. Avoid eye or skin contact and inhalation of vapors. Increase ventilation. Clean-up personnel should wear appropriate protective gear.

Fire and Explosion Hazard	Extinguishing Media
Batteries may burst and release hazardous decomposition products when exposed to a fire situation. See Sec. C.	As appropriate to surrounding area.

Firefighting Procedures

Use self-contained breathing apparatus and full protective gear.

I. — FIRST AID AND MEDICAL EMERGENCY PROCEDURES

Eyes

Not anticipated. If battery is leaking and material contacts eyes, flush with copious amounts of clear, tepid water for 30 minutes. Consult a physician at once.

Skin

Not anticipated. If battery is leaking, irrigate exposed skin with copious amounts of clear, tepid water for at least 15 minutes. If irritation, injury or pain persists, consult a physician.

Inhalation

Not anticipated. If battery is leaking, contents may be irritating to respiratory passages. Remove to fresh air. Contact physician if irritation persists.

Ingestion

Consult a physician. Published reports recommend removal from the esophagus be done endoscopically (under direct visualization). Buttons beyond the esophagus need not be retrieved unless there are signs of injury to the GI tract or a large diameter battery fails to pass the pylorus. If asymptomatic, follow-up x-rays are necessary only to confirm passage of larger batteries. Confirmation by stool inspection is preferable under most circumstances. If mouth area irritation/burning has occurred, rinse the mouth and surrounding area with clear, tepid water for at least 15 minutes.

Notes to Physician

1) For information on treatment, telephone (202) 625-3333 collect.
2) The primary acutely toxic ingredient is concentrated (~35%) potassium hydroxide and / or (~20-30%) sodium hydroxide. Mercury toxicity is unlikely, but physician's discretion is advised.
3) Anticipated potential leakage volume of potassium/sodium hydroxide is 0.05 to 0.5 ml.

Replaces #1465.